

CLAIMS

What is claimed is:

1. An apparatus to excise a tissue sample, comprising:  
a conducting element configured to receive power;  
an insulating holder coupled to said conducting element; and  
a connector coupled to said insulating holder for connection to a medical device.
2. The apparatus of claim 1 wherein said conducting element is made of a conducting material
3. The apparatus of claim 2 wherein said conducting material is tungsten wire.
4. The apparatus of claim 1 wherein said insulating holder is made of a heat-resistance and electrically insulating material.
5. The apparatus of claim 1 wherein said medical device comprises an optical endoscope.
6. The apparatus of claim 1 wherein said conducting element includes a plurality of micro-fractures.
7. The apparatus of claim 1 wherein the power is a wire enforcement member coupled to said conducting element.
8. The apparatus of claim 1 wherein the power is an electrical wire connected to said conducting element at a first end and a power source at a second end.
9. The apparatus of claim 8 wherein said power source is a radio frequency power source.
10. The apparatus of claim 8 wherein said electrical wire is secured with a spring tension device and a friction tension device.

11. The apparatus of claim 1 further comprising a vibrating mechanism coupled to the conducting element.
12. The apparatus of claim 8 further comprising a vibrating mechanism coupled to said electrical wire.
13. The apparatus of claim 1 further comprising a temperature sensor coupled to said conducting element.
14. The apparatus of claim 1 further comprising an impedance sensor coupled to said conducting element.
15. The apparatus of claim 1 further comprising a mechanical puller coupled to said conducting element.
16. The apparatus of claim 1 further comprising a mechanical pusher coupled to said conducting element.
17. The apparatus of claim 1 further comprising a power control box coupled to said conducting element.
18. A method for excising a tissue sample from a body, comprising:
  - inserting a resection device into the body, the resection device having a conducting element configured to receive electrical power;
  - positioning the conducting element adjacent the tissue to be excised;
  - applying power to the conducting element;
  - moving the resection device along the tissue tract;
  - removing the power applied to the conducting element; and
  - withdrawing said resection device from the body.

19. The method of claim 18 wherein said applying further comprises pushing a foot pedal.
20. The method of claim 18 wherein said removing further comprises releasing a foot pedal.
21. The method of claim 18 wherein said moving further comprises viewing the movements of said resection device.
22. The method of claim 18 wherein said withdrawing further comprises grasping said tissue sample with a grasper.
23. The method of claim 18 wherein said conducting element is made of a conducting material.
24. The method of claim 23 wherein said conducting material is a tungsten wire.
25. The method of claim 18 wherein said inserting further comprises connecting said resection device to a medical device.
26. The method of claim 25 wherein said medical device comprises an optical endoscope.
27. The method of claim 18 wherein said conducting element includes a plurality of micro-fractures.
28. The method of claim 18 further comprising vibrating said conducting element.
29. The method of claim 18 further comprising sensing a temperature of said conducting element.
30. The method of claim 18 further comprising sensing an impedance of said conducting element.

31. The method of claim 18 wherein said applying further comprises controlling the power with a power control box.
32. An apparatus for excising a tissue sample from a body, comprising:
- means for inserting a resection device into the body, the resection device having a conducting element configured to receive electrical power;
  - means for positioning the conducting element adjacent the tissue to be excised;
  - means for applying power to the conducting element;
  - means for moving the resection device along the tissue tract;
  - means for removing the power applied to the conducting element; and
  - means for withdrawing said resection device from the body.
33. The apparatus of claim 32 wherein said means for applying further comprises pushing a foot pedal.
34. The apparatus of claim 32 wherein said means for removing further comprises releasing a foot pedal.
35. The apparatus of claim 32 wherein said means for moving further comprises viewing the movements of said resection device.
36. The apparatus of claim 32 wherein said means for withdrawing further comprises grasping said tissue sample with a grasper.
37. The apparatus of claim 32 wherein said conducting element is made of a conducting material.
38. The apparatus of claim 37 wherein said conducting material is a tungsten wire.
39. The apparatus of claim 32 wherein said means for inserting further comprises connecting said resection device to a medical device.

40. The apparatus of claim 39 wherein said medical device comprises an optical endoscope.
41. The apparatus of claim 32 wherein said conducting element includes a plurality of micro-fractures.
42. The apparatus of claim 32 further comprising means for vibrating said conducting element.
43. The apparatus of claim 32 further comprising means for sensing a temperature of said conducting element.
44. The apparatus of claim 32 further comprising means for sensing an impedance of said conducting element.
45. The apparatus of claim 32 wherein said means for applying further comprises means for controlling the power with a power control box.
46. An apparatus to excise a mucosa tissue layer from a submucosa tissue layer, comprising:
- a conducting element configured to receive power positioned between the mucosa and submucosa tissue layer,
  - wherein a steam layer is created by the excision of the mucosa tissue layer from the submucosa tissue layer when power is received by the conducting element.
47. The apparatus of claim 46 wherein the mucosa tissue layer has a higher percentage of moisture than the submucosa tissue layer.
48. The apparatus of claim 46 wherein the steam layer has a temperature equal to or less than 100°C.
49. The apparatus of claim 46 further comprising:

- an insulating holder coupled to said conducting element; and
- a connector coupled to said insulating holder for connection to a medical device.
50. The apparatus of claim 46 wherein said conducting element is a tungsten wire.
51. The apparatus of claim 49 wherein said insulating holder is made of a heat-resistant and electrically insulting material.
52. The apparatus of claim 49 wherein said medical device comprises an optical endoscope.
53. The apparatus of claim 46 wherein said conducting element includes a plurality of micro-fractures to produce a plasma field.
54. The apparatus of claim 46 wherein the power is a wire enforcement member coupled to said conducting element.
55. The apparatus of claim 46 wherein the power is an electrical wire connected to said conducting element at a first end and a power source at a second end.
56. The apparatus of claim 55 wherein said power source is a radio frequency power source.
57. The apparatus of claim 55 wherein said electrical wire is secured with a spring tension device and a friction tension device.
58. The apparatus of claim 46 further comprising a vibrating mechanism coupled to the conducting element.
59. The apparatus of claim 55 further comprising a vibrating mechanism coupled to said electrical wire.
60. The apparatus of claim 46 further comprising a temperature sensor coupled to said conducting element.

61. The apparatus of claim 46 further comprising an impedance sensor coupled to said conducting element.
62. The apparatus of claim 46 further comprising a mechanical puller coupled to said conducting element.
63. The apparatus of claim 46 further comprising a mechanical pusher coupled to said conducting element.
64. The apparatus of claim 46 further comprising a power control box coupled to said conducting element.